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pulse@UM

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CONTENTS

Pulse@UM editorial team : Adapting to the new norm

Foreword by Deputy Dean

Professor Dr Ng Chirk Jenn
Deputy Dean of Research

Greetings to everyone! I hope that you are well and healthy. The year 2020 has been challenging so far due to the COVID-19 pandemic. The pandemic has affected the world in all aspects, including social, economic, cultural and health aspects. The situation in Malaysia is now under control, thanks to the prompt actions taken by the government authorities and relentless efforts by all frontliners, including our healthcare workers at the University of Malaya Medical Centre.

The containment of COVID-19 would not have been possible without the cooperation of the public, especially in maintaining personal hygiene and social distancing. The cover photo in this issue is a perfect illustration of the importance of social distancing in mitigating the transmission of SARS-CoV-2 in the community. The row of matches is symbolic of people in close social distance, and the burning matches are the affected individuals. By removing a match from the line, the matches beyond it are saved from being scorched. This simple visual concept reminds everyone that self-isolation and social distancing are both an individual and societal responsibility.

While the world is working tirelessly to combat the COVID-19 pandemic, researchers from the Faculty of Medicine initiated several impactful Covid-related projects. In this issue, the cover stories include UMMC's initiative on using surveillance information to monitor and protect healthcare workers in the hospital; research on the evolutionary relationship of SARS-CoV-2 and animal coronaviruses; and one of the first Covid clinical trials in Malaysia on the use of Tocilizumab against severe COVID-19 cases started in UMMC. Under a special section in this issue, we also feature exciting COVID-19 innovations designed by our Faculty researchers: the COVID-19 Symptom Monitoring System (CoSMoS), bibliometric database for COVID-19 publications, and the complete genome sequencing of Malaysian SARS-CoV-2 strains.

There's also some good news to celebrate amidst the Covid pandemic. A team of Faculty members has won a bronze medal at the Teaching and Learning Congress and Innovation Competition (kNovasi) 2020 for developing an innovative guide for problem-based learning in medical education. The Faculty of Medicine now offers the Master of Health Research Ethics (MOHRE) programme, which aims to groom future leaders in research ethics to handle the increasingly complex ethical issues in biomedical research. In March, a cancer research forum was organized to bridge cross-disciplinary research between clinical and pre-clinical researchers. In addition, a community engagement project funded by UMCares was also conducted to cultivate science in secondary schools with fun and interactive modules.

I hope you will enjoy reading this issue as much as I do. Stay safe!

Professor Dr. Ng Chirk Jenn

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CONTRIBUTORS

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Rafdzah Ahmad Zaki, Tee Kok Keng, Malinee Neelamegam, Reena Rajasuriar, Wong Kah Hui, Foong Chan Choong, Amirah binti Amir, Nishakanthi Gopalan, Ng Chirk Jenn, Goh Siew Li, Looi Mee Lee, Nur Aishah Mohd Taib, Puah Suat Moi, Chan Yoke Fun, Lim Hooi Min, Ng Kwan Hoong

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COVER STORY

COVID-19 Pandemic: Protecting the Health Care Worker using Surveillance Information

RAFDZAH AHMAD ZAKI
(Department of Social and Preventive Medicine)

M reported its first COVID-19 case on the 25th of January 2020. Following this, the number of cases increased and a significant jump was observed in mid-March. The number of new cases has stabilized and started to drop from the end of April. Within three months of the outbreak, Malaysia has reported a total of 5,851 cases with 100 deaths (as of 28 April 2020).

The University of Malaya Medical Centre (UMMC) is one of the designated hospitals to screen and manage COVID-19 patients. Being a COVID-19 hospital, UMMC healthcare workers (HCWs) are exposed to hazards that put them at risk of COVID-19 infection. Apart from the hazards of pathogen exposure, HCWs are also exposed to long working hours, psychological distress, fatigue, occupational burnout, social stigma, and physical as well as psychological violence. The Department of Public Health and the Occupational Safety Health and Environment (OSHE) unit in UMMC have put their efforts together to protect the HCWs by setting up the UMMC COVID-19 HCW Surveillance System. Surveillance of healthcare-associated infections is one of the World Health Organization (WHO)'s eight core components of infection prevention and control. While surveillance is a critical component of providing safe healthcare, it is important to recognize that it requires expertise, good quality data, and an established infection prevention and control program.

Health facility surveillance capacity varies within health systems. At this moment, the UMMC HCW surveillance system functions under medium capacity (according to the CDC guideline) with a standardized data collection, and some limitations in staff and data availability. The UMMC COVID-19 Health Care workers surveillance operation room was first located in the Department of Social & Preventive Medicine (SPM) and was operated by the public health medicine specialists and nurses in that Department. Starting from 1st April 2020, the operation room has expanded its function and has moved to level 2 of the RUKA Building, UMMC. The role of the operation room includes rapid identification, risk assessment and management, follow-up, and close monitoring of HCWs in contact with COVID-19 patients.

All UMMC staff who were exposed to COVID-19 patients will have their risk assessed and those with low, medium and high risk will be enrolled in the surveillance system. The particular staff will then be considered as persons under surveillance (PUS). Each PUS needs to report the absence or presence of COVID-19 symptoms in him or her every day for 14 days from the last date of exposure to a COVID-19 patient. A staff member who fails to report his or her symptoms will be followed up. This is consistent with the remote active strategy in surveillance to identify HCWs with suspected COVID-19. A guideline and decision algorithms for the response to HCW reports have been developed to ensure rapid and appropriate management of PUS. Early detection will result in a better disease outcome and prevent further spread of the infection. In addition, PUS also will be linked to psychological support to reduce their stress and anxiety during this pandemic period.

Information from the surveillance systems is compiled and analyzed to provide scientific and factual database essential for informed decision making and appropriate actions to improve the management of COVID-19 patients and protect the HCWs. A simple analysis of basic information of HCWs such as job description, location of work, and type of personal protective equipment (PPE) used during the exposure, allows identification of the areas for improvement in reducing the risk of HCWs to COVID-19.

> *"Apart from the hazards of pathogen exposure, HCWs are also exposed to long working hours, psychological distress, fatigue, occupational burnout, stigma, and physical as well as psychological violence"*

Active surveillance of HCWs can be highly resource-intensive. An automated method through mass texting service to contact HCWs as a prompt for self-assessment through the UMMC portal is now being developed. It is hoped this will help to improve the overall quality of the UMMC COVID-19 HCW Surveillance System and its sustainability. Thus, UMMC HCWs can be continuously monitored and protected throughout this COVID-19 pandemic.

For more information on a series of news clips, articles and media interviews on COVID19, please visit https://spm.um.edu.my/

Surveillance team responsible for the monitoring of COVID-19 among healthcare workers in PPUM

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Continuous Evolution of SARS-CoV-2 and Animal Coronaviruses

TEE KOK KENG
(Department of Medical Microbiology)

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes COVID-19, is a new virus that belongs to the family *Coronaviridae* that normally circulate in animals and humans. Like any other viruses, SARS-CoV-2 will continue to mutate while circulating in humans.

Such mutations, however, are usually minor and take a long time to accumulate. In the past four months since the outbreak started, the virus has been spreading in many countries and genetic analysis of the virus sampled across the world has shown some degree of minor mutations, or polymorphisms, that are specific to certain geographical regions with epidemiological linkage. These mutations are most likely non-alarming, but serve as a "signature" that help epidemiologists to track the movement (gene flow) of the virus. So, not all mutations are harmful, per se.

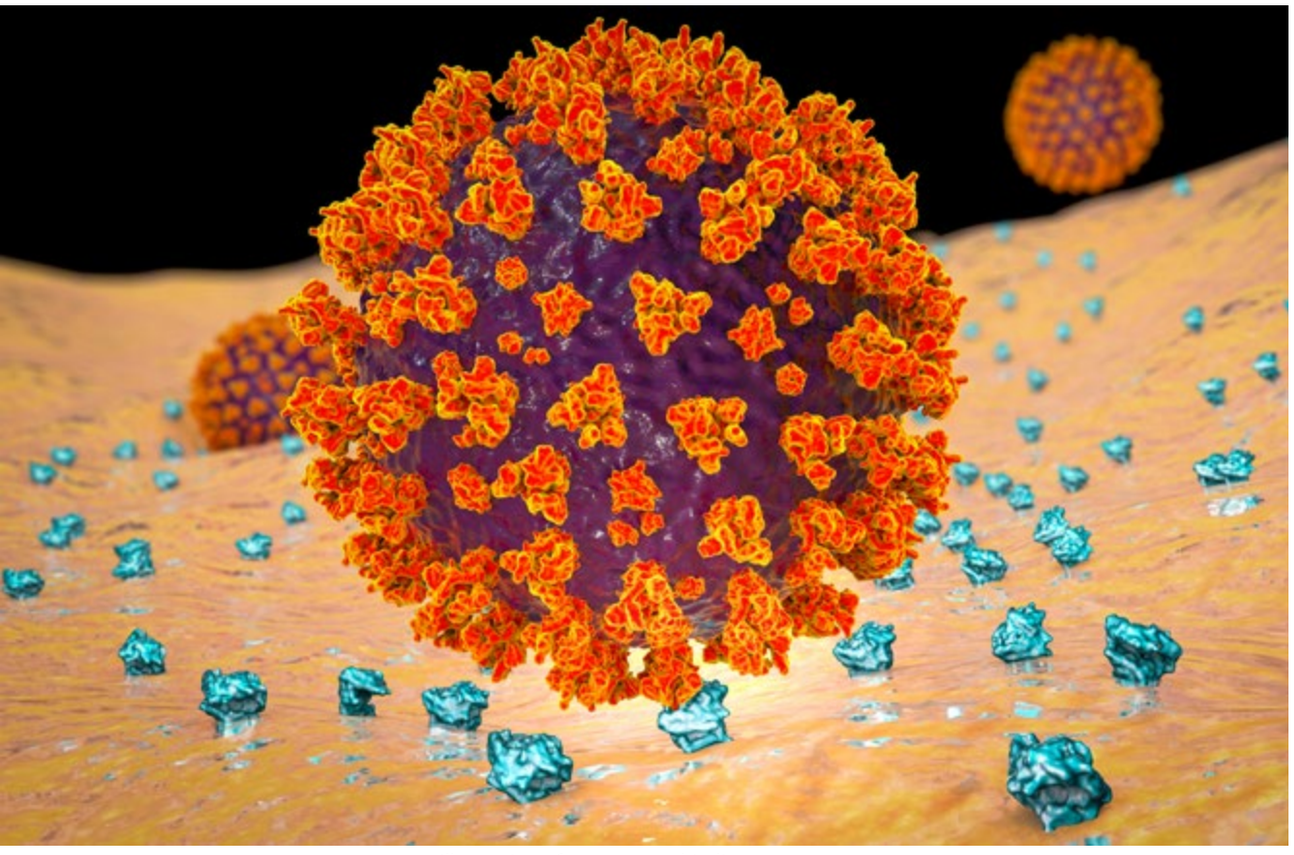
However, if certain mutations occur in some important proteins of the virus, either through a random event or positive selection, these mutations may change the phenotype or characteristics of the virus.

Such mutants may cause more severe disease (increased virulence), greater transmissibility (increased virus fitness), more resistance to the human immune response (escape mutants), or simply non-detectability by the conventional diagnostic assay that was designed based on the wild type strain (diagnostic drift). However, such events are yet to be reported in the literature at this point. Therefore, continuous genetic surveillance and mass sequencing are essential to trace the distribution and dispersion of the virus.

In addition to genetic surveillance in the community, continuous search for other animal coronaviruses that may have the potential for cross-species transmission from the reservoir and/or intermediate host(s) to humans remains an important goal in understanding zoonotic diseases.

> *"Like any other viruses, SARS-CoV-2 will continue to mutate while circulating in humans"*

The full genome of SARS-CoV-2 shares 96.2% identity with betacoronaviruses identified in the *Rhinolophus affinis* bats in the Yunnan province in China, indicating the bat-origin of SARS-CoV-2. *Rhinolophus* spp. are abundant and diverse in Southern China and across Asia, the Middle East, Africa and Europe. Intriguingly, prior to the COVID-19 outbreak, more than 500 species of CoV have already been identified in bats in China, many of which do not cause any disease symptoms in their natural hosts. It has also been speculated that up to a staggering 5,000 previously unknown CoV species could be circulating insidiously in bats. However, the route of spillover from bats to humans remains unclear, and may involve domesticated mammals, and farmed or hunted wildlife. Tracking the (sero) prevalence, continuous evolution and movement of animal coronaviruses may help prevent the spillover of zoonotic viruses, limiting the potential of another pandemic.



An illustration of SARS-CoV-2 binding to receptors

COVID-19 Trial: Tocilizumab Against Cytokine Storm In Severe Cases

MALINEE NEELAMEGAM
(*Department of Medicine***)**

REENA A/P RAJASURIAR
(*Department of Medicine***)**

Led by the Dean of University Malaya Faculty of Medicine, Professor Datuk Dr Adeeba Kamarulzaman, clinicians and researchers at University Malaya Medical Centre (UMMC), and three Ministry of Health Malaysia hospitals (Sungai Buloh Hospital, Kuala Lumpur Hospital and Tuanku Jaafar Hospital, Seremban) will be conducting a clinical trial to evaluate the efficacy of Tocilizumab for the treatment of severe cases of Covid-19.

In this randomized controlled clinical trial, investigators aim to compare the efficacy of intravenous Tocilizumab against Methylprednisolone, a high-dose corticosteroid in approximately 310 hospitalised, severely ill Covid-19 patients. Tocilizumab is conventionally used for the treatment of rheumatoid arthritis and conditions of excessive inflammation. Patients in the study will be randomized to receive either Tocilizumab or Methylprednisolone, both of which are known to inhibit inflammation.

While approximately 80% of Covid-19 patients have mild to moderate symptoms and eventually recover, 15% of infected individuals progress to severe Covid-19 with another 5% developing critical illness due to the infection. Death is reported to be as high as 3% in Covid-19 patients. As the pandemic progresses, clinicians are learning more about the underlying causes of progression to critical illness. In these individuals, a cytokine storm, or an uncontrolled release of cytokines by the immune system results in respiratory failure and the need for mechanical ventilation. A specific cytokine, interleukin-6 (IL-6) is a critical component of the Covid-19 cytokine storm. Blocking IL-6 may stop the progression of the disease to its most critical stage. This is where investigators believe Tocilizumab, a drug specifically designed to block the negative effects of IL-6 can potentially reduce the severity of the illness. Covid-19 patients who develop the cytokine storm syndrome at UMMC have already shown encouraging results after receiving Tocilizumab.

The investigators strongly believe that this clinical trial has the potential to save many lives. It will move to contribute to the urgent need for evidence based effective treatment protocols for Covid-19 patients globally.

COVID-19 Development and Innovation

The COVID-19 Symptom Monitoring System (CoSMoS) Study

***Lim Hooi Min**, Department of Primary Care Medicine*

In response to the Covid-19 pandemic, members of the University of Malaya eHealth Initiative (UMeHI) - a collaborative research group that champions digital health research in UM – decided to develop CoSMoS to monitor patients with suspected Covid-19 infection, which is incurring a huge burden on the healthcare providers. Patients who agree to participate in the CoSMoS study will be monitored at home using an interactive Telegram bot and reminded to report their symptoms every day for 14 days. Patient data will then be sent to a centralised CoSMoS dashboard at the hospital, where doctors can monitor each patient's condition in real-time and provide teleconsultation if necessary.

The first CoSMoS prototype was developed within 8 days of project commencement while patients started using it within 2 weeks after rigorous testing by the research team. This project is made possible by a strong multidisciplinary team comprising researchers, clinicians, students from Faculties of Medicine, Computer Science and Information Technology, and Law. Currently, the CoSMoS project is being carried out at the Primary Care Clinic (RUKA) and Emergency Department in UMMC. The preliminary feedback from both doctors and patients has been very encouraging, and there is a plan to expand CoSMoS to other healthcare settings to benefit more patients and healthcare providers.

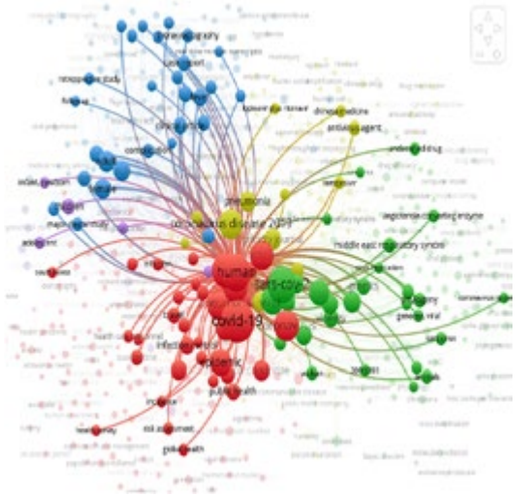
COVID-19: Dynamic Knowledge Mapping

Just as the spread of the Covid-19 infection has been staggering, so has been the rate and spread of information about it. But people ask – what can be trusted? Now a multi-disciplinary, multi-national team led by Prof Ng Kwan Hoong has developed a web-based resource for accessing new research publications on Covid-19 using bibliometric measures (www.covid19bibliometrics.org).

It provides reliable information on what can be relied upon as sound science so that health professionals and scientists can guide research, find solutions, and help defeat this pandemic.

The team scans and analyses this constant output of knowledge and creates a regular series of overview charts providing a visual summary of the published literature. One example reveals five major clusters based on the frequency of keywords employed (see diagram above). One aim is to identify research trends and gaps in knowledge for future work.

COVID-19 Top Cited Keywords Map



The Team

Prof. Dr. Ng Kwan Hong
Team leader
Medical Physicist
Universiti Malaya

Assoc. Prof. Dr. Kiran Kaur
Information Scientist
Universiti Malaya

Assoc. Prof. Dr. Noorhidawati
Information Scientist
Universiti Malaya

Dr. Yanti Idayu Aspura
Information Scientist
Universiti Malaya

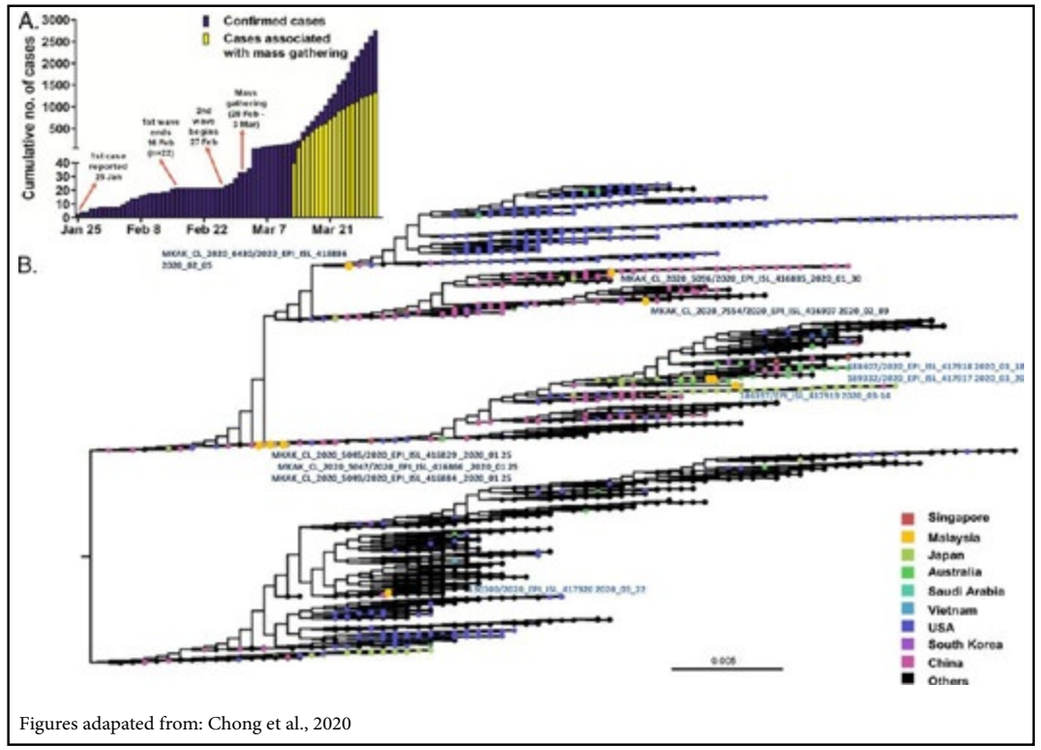
Dr. Anjanna Kukreja
Infectious Disease Specialist
Universiti Malaya Medical Centre

Assoc. Prof. Dr. Yeong Chai Hong
Medical Physicist
Taylor's University

Dr. Ray Kemp
Health Risk Communication Specialist
United Kingdom

Complete Genome Sequences of SARS-CoV-2 Strains Detected in Malaysia

***Chan Yoke Fun**, Department of Medical Microbiology*



Figures adapated from: Chong et al., 2020

A team of researchers led by Assoc. Prof. Dr. Chan Yoke Fun and Prof Jamal Sam sequenced four severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) genomes during the second wave of infection from Malaysia. It is the first publication that reported the full genome sequences of Malaysian SARS-CoV-2 strains. This is made possible by the team effort of the University Malaya COVID-19 Research Group, which includes the healthcare workers involved in the care of COVID-19 patients in the University of Malaya Medical Centre.

Compared to reference strain Wuhan-Hu-1, the Malaysian sequences have 16 nucleotide substitutions. Four substitutions are unique to Malaysia, suggesting a degree of local evolution. Circulating Malaysian strains represent introductions from different countries, particularly during the first wave of infection. Our data showed that current circulating strains in Malaysia represent introductions from different countries and local evolution. More genomic data will clarify virus spread in Malaysia, particularly with respect to the role played by the mass gathering. Genome sequencing of virus has become a useful tool for epidemiological surveillance.

Article source:
Chong YM, Sam I-C, Ponnampalavanar S, Syed Omar SF, Kamarulzaman A, Munusamy V, Wong CK, Jamaluddin FH, Gan HM, Chong J, Teh CSJ, Chan YF. 2020. Complete genome sequences of SARS-CoV-2 strains detected in Malaysia. Microbiol Resour Announc 9:e0038-20. https://doi.org/10.1128/MRA.00383-20.

RESEARCH SPOTLIGHT

Generating Solutions for Problem-Based Learning (PBL) Beginners

WONG KAH HUI
(Department of Anatomy)

FOONG CHAN CHOONG
(Faculty of Medicine Dean's Office)

AMIRAH BINTI AMIR
(Department of Parasitology)

Problem-based learning, more commonly known as PBL, is a learning method in which students learn a subject by collaboratively solving an open-ended real world problem. Its nature of self-directed learning is in line with Malaysian Higher Education 4.0 (MyHE 4.0) which focuses on learners as teachers/connection makers and educators as resource guides. Although PBL was first introduced in medical education more than five decades ago, it has only been 21 years since the University of Malaya adopted it into its medical curriculum. PBL in the University of Malaya medical curriculum started out as a hybrid traditional-PBL as a part of the New Integrated Curriculum (NIC), with just 14 PBL cases. Currently, there are 62 PBL cases conducted throughout the Year 1 and Year 2 studies within the new University of Malaya Medical Programme (UMMP). On average, medical students work on one PBL case weekly.

There are challenges in conducting PBL among novice medical students since they are usually untrained to collaboratively solve problems in secondary schools. Furthermore, some students may resent the idea of self-directed learning, especially since they might have been spoon-fed all their school life in an exam-oriented culture. Similarly, PBL tutors (i.e. lecturers) also need training. Tutors and students are trained before conducting their first PBL session, but it is usually during the actual PBL sessions where the challenges are practically seen. Dr. Wong Kah Hui, Dr. Foong Chan Choong and Dr. Amirah Amir were novice tutors who faced challenges in conducting PBL sessions among novice students.

> *"PBL was introduced in medical education more than five decades ago"*

(left to right) Dr. Foong Chan Choong, Dr. Wong Kah Hui, Dr Amirah Amir

TThey have gradually gained experience on how to overcome these challenges. They decided to write a guidebook '8 Top Tips to Facilitate Problem-Based Learning Among Novice Medical Students' to share their actual experiences. The eight top tips are icebreaking, understanding roles and positions, ground rules, keeping discussion on the right track, dealing with different personalities and characters, teamwork, gathering valid information, and giving feedback. In the guidebook, each tip is elaborated using actual scenario(s), its possible solutions and corresponding rationales. For instance, some students might come late or may be engrossed in their smartphones. At the start of the PBL sessions, tutors should engage students to list rules that are achievable and deemed important. Every student has to agree to these rules. Examples of rules include being punctual, limiting smartphone usage and listening when someone is speaking. Since these rules are set by the student themselves, they will feel more obliged to follow the rules. This practical guide aims to boost the confidence of tutors and to assist them in mitigating PBL among novice medical students.

This innovative guidebook won a bronze medal at the Teaching and Learning Congress and Innovation Competition (kNovasi) 2020 which was held on 5-6 February 2020, organised by the National University of Malaysia, UKM.

Learning Research Ethics through MOHRE

NISHAKANTHI GOPALAN
(Department of Medicine)

NG CHIRK JENN
(Department of Primary Care Medicine)

The Curriculum Development Workshop presented by Dr Sean Tackett from Johns Hopkins University during his recent visit to UM and was attended by MOHRE students and faculty members.

The recent COVID-19 pandemic has shaken the world. While the front-liners battle the pandemic facing public health challenges, there is a moral obligation for the researchers to provide rapid answers to deal with this global emergency. There are many ethical considerations involving research during a pandemic that are unique and require careful examination and documentation. The expedited clinical trials using unproven investigational drugs with the rising mortality rate and the informed consent of participants in isolation or quarantine, including those suffering the illness, are just a few of them. These are what an expert with health research ethics qualifications will be able to address.

The Master of Health Research Ethics (MOHRE) is a unique programme that focuses on building capacity in health research ethics, particularly in the Southeast Asian region. The programme is taught by a team of experienced and transdisciplinary faculty members from the University of Malaya (UM) and Berman Institute of Bioethics, Johns Hopkins University.

It hopes to groom future leaders in research ethics who are competent in handling a broad range of ethical concerns in biomedical and social science research. The programme is designed for individuals who plan to pursue careers such as a member or administrator of the institutional review boards (IRBs), an academician who specializes in research ethics or bioethics, a research officer or coordinator, and a researcher who works with vulnerable populations or leads emerging scientific research.

The one-year full-time coursework programme is conducted over two long semesters (14 weeks each) and one special semester (8 weeks) with most classes strategically scheduled on Wednesdays and Thursdays to cater to working students. During the special semester, the MOHRE students will be attached to an IRB, a research team or a research organization; this will provide them the opportunity to experience research ethical issues in the real world.

For more information on this programme and how to apply, please go to our website (https://mohre.um.edu.my/) or drop us an email at mohre@um.edu.my.

*funded by the Fogarty International Center of the United States National Institute of Health (NIH)

MOHRE students with the Programme Coordinator, Prof Dr Ng Chirk Jenn and Johns Hopkins University counterparts (bottom line from left): Joe Ali, Prof Dr Ng Chirk Jenn, Prof Dr Jeremy Sugarman and Dr Nishakanthi Gopalan (MOHRE Secretariat).

Our first hand-picked cohort (2019/2020) awarded with the MOHRE scholarship (from left bottom and up): Norizan, Justin (Philippines), Naomi, Grazele, Mei Lian, Eliza, Maylene (Philippines), Malini and Alex.

Network Meta-analysis: The Emerging Trend in Evidence Synthesis

GOH SIEW LI
(Sports Medicine Unit, Faculty of Medicine)

Given that a plethora of treatment options exist for many clinical conditions, healthcare practitioners are turning to evidence summaries, especially meta-analytic reviews, for decision making. Synthesizing evidence was conventionally performed using pairwise meta-analysis technique until about two decades ago when network meta-analysis (NMA) was introduced. NMA, which is an extension of conventional pairwise meta-analysis, is fast making its mark in health research (Figure 1) because it offers several benefits over conventional techniques.

Unlike conventional techniques, comparison between multiple treatments can be performed coherently in a single analysis through NMA (Chandler J et al. 2019). Hence, NMA is sometimes referred to as multiple treatments meta-analysis. For example, the comparison of three different treatments ABC (i.e. A vs B, B vs C, A vs C) which would be conventionally performed using three reiterative analyses, can now be combined and analyzed simultaneously (as long as ABC form a connected network).

Also, when all treatments are linked, as shown in Figure 2, it is possible for NMA to derive the estimate between treatment pairs that have never been directly evaluated in clinical trials. The simplest network where ABC are linked is illustrated in Figure 1. Although there are no existing studies for AB, the comparison between AB can be indirectly estimated through AC and BC studies. In other words, the results from NMA do not only comprise of direct estimates, but also indirect estimates,

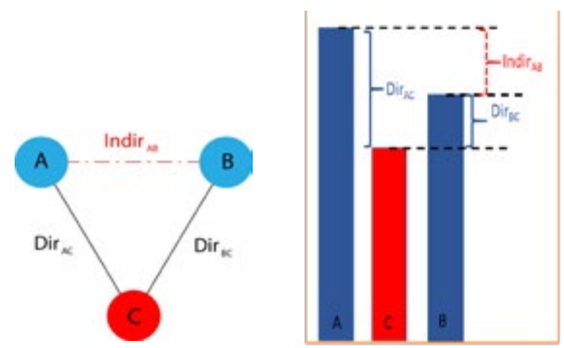


Figure 1: Indirect estimate in Network meta-analysis. *Even in the absence of A-B trials, the A-B can still be compared indirectly as both A and B is connected via C. Black solid lines - direct comparison, red broken line – indirect comparison Dir: Direct; Indir: Indirect.*

but also indirect estimates. In the eventuality of AB trials being found/ conducted, the estimates for AB will then become known as mixed estimates because, the estimate of AB is now comprised of direct as well as indirect estimates. A mixed estimate is generally more precise than direct or indirect estimates alone (e.g. confidence interval is narrower).

The key benefit of NMA is to pool relevant evidence and perform comparison for three or more treatments simultaneously (even in the absence of head-to-head studies). However, NMA may also be used to provide a concise summary of how each treatment is compared to others, permitting researchers to identify strength and gaps in the evidence base (Figure 3). Additionally, decision makers may use NMA to gain information on treatment ranking. Treatment ranking, which is normally performed under the Bayesian framework, may be expressed as the probability of each treatment being ranked the best.

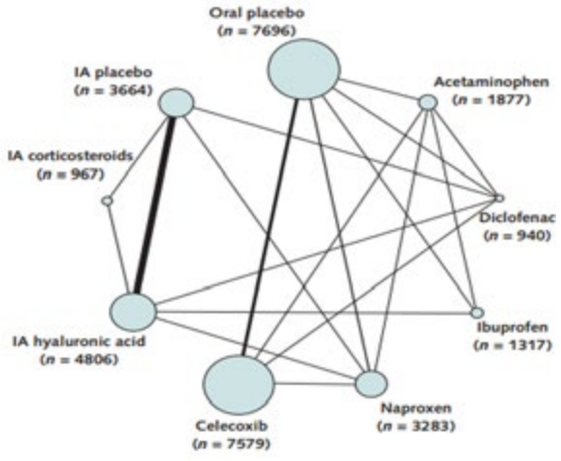


Figure 2: Example of a network plot summarizing connectivity of evidence. *Treatment groups are represented by circles (nodes) while the lines between each nodes represents direct comparison. Size of nodes and width of lines are proportionate to the number of participants and number of studies, respectively. (Adapted from Bannuru et al, 2015)*

However, experts caution against placing too much emphasis on the ranking outcome for a few reasons; one of which relates to the lack of clinical consideration (such as treatment risk profile) if the treatment ranking were to be interpreted at 'face value' (Mbuagbaw, L et al 2017).

Assumptions in NMA are generally similar to assumptions in pairwise meta-analysis (i.e. studies are sufficiently similar and homogeneous with regards to disease effect modifiers and study characteristics). However, in NMA, the validity of the results (especially the indirect evidence) is underpinned by additional assumptions. These assumptions are assumption of consistency between direct and indirect estimates (i.e. both estimates should agree) and assumption of transitivity (i.e. distribution of effect modifiers is similar across comparisons). Apart from violation of these assumptions, methodological flaws and inclusion of poorly conducted/ reported clinical trials are among some factors that could undermine the quality of NMA results.

It is therefore important to critically appraise any meta-analysis work even though it is the highest level of evidence. Ironically, meta-analysis is in principle an observational type of study. It is also easily affected by the biases of observational study design.

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Bridging Translational Cancer Research - Current Status, Challenges and Future Strategies

LOOI MEE LEE
(Department of Biomedical Science)

NUR AISHAH MOHD TAIB
(Department of Surgery)

Panel of speakers and organising committee. Organising committee members: Dr. Looi Mee Lee, Dr. Kamariah Ibrahim, Dr. Mohamad Shafiq Azanan, Dr. Jaime Jacqueline Jayapalan.

On 3 March 2020, in conjunction with World Cancer Day, the University of Malaya Cancer Research Institute (UMCRi) organised the "Bridging Translational Cancer Research" forum. The forum saw participation from UM clinical and pre-clinical researchers; 47 participants were in attendance. The event aimed to provide a forum for researchers to share and facilitate collaborative research among the UM members and hence potentially motivate interdisciplinary research grant proposals for funding agencies in the future. Prof. Dr Nur Aishah Taib, Director of UMCRi briefed the participants on UMCRi and current restructuring exercise towards UM Cancer Institute. She welcome members and associate members to participate once the restructuring exercise has been completed.

The forum invited renowned researchers from UM to share their bench-to-bedside

research success stories. Prof. Dr Azad shared about his lifetime collaboration with the Ministry of Health and Department of Surgery; the collaboration had brought about several high impact publications. Assoc. Prof. Dr Fung shared a randomised clinical trial on tiger milk mushroom funded by the Mahmood Merican Grant in collaboration with the Oncology, Breast Surgery and Palliative Care Unit in the Faculty of Medicine. Prof. Dr Bee shared about the development of a CAR-T cell programme in UM

Seven medical science researchers from various departments and faculties were invited to present their fundamental research on various topics including signalling pathways in cancers, cellular models, discovery of biomarkers, detection technology, drugs discovery, drug development and delivery. The sharing session was followed by clinical research updates in UM, presented by Assoc. Prof. Dr Ho Gwo Fuang. Towards the end of the event, Assoc. Prof. Dr Vairavan Narayanan led a discussion of potential collaboration opportunities and challenges. Concerns were raised about the availability of funding, conflict of interests, fragmented infrastructure, and shortage of qualified and research-oriented clinicians. As a solution to increase interdisciplinary collaboration and synergy between UM clinical and pre-clinical cancer researchers, three and two cancer projects from the Department of Surgery and Department of Oncology respectively will be hosted by UMCRi this year to raise awareness and networking amongst the talent available in the UM community in preparation for grant applications in 2021.

Prof. Dr. Vairavan Narayanan presented the roles of surgeon in enhancing fundamental clinical research.

COMMUNITY ACTIVITIES

A Science Outreach and Engagement Story: DNA, the Secret of Life

PUAH SUAT MOI
(Department of Biomedical Science)

Secondary students from SMK(P) Sri Aman showed their experiment output with excitement and satisfaction - visible clumps of DNA.

DNA science is an important field of knowledge because it can provide cures for human diseases, improve modern medicine, solve environmental challenges and offer new agricultural solutions to continue feeding the world's growing population. However, in reality, school children often find the topics of DNA dry and, sometimes, tricky to understand.

As part of UMCares' community engagement project, two workshops on DNA science have been organized for secondary school students in the science stream. The primary aim of the workshops was to cultivate interest on learning DNA science in secondary school students with lively and engaging activities. The workshop is a collaborative effort with the Kelab Sahabat UM Network to reach out to nearby secondary schools in Petaling Jaya via a "Meet and Greet" session. With adherence to the core value of UMCares – "signifying the university's commitment to

An internal workshop training for paper-based DNA fingerprinting module.

sustainability and community engagement", household items such as salt and detergent were used as the workshop materials to enable easy access for the students to repeat the experiments at home or schools.

In early February and March of 2020, we conducted the workshops at SMK(P) Sri Aman and SMK Lembah Subang, with the involvement of Biomedical Science Year 1 and Year 2 students as facilitators. The target participants were upper secondary students who had learnt about DNA in school. The workshop started with a quick ice-breaking session and a lively introduction to DNA science, followed by hands-on DNA extraction from their own cheek cells, as well as different mashed fruits including banana, kiwi, orange and papaya under close facilitation and guidance. Before the end of the workshops, an interactive quiz and survey was conducted to gauge their interest level in DNA science.

Out of 76 post-workshop survey responses, 92% of the secondary school students agreed that their interest in DNA learning was strongly stimulated after the workshop compared to before the workshop (64%). On top of that, more than 90% of the students could understand DNA topics to explain the abstract concepts of DNA science better through hands-on activities during the workshops, as compared to traditional classroom teaching. The hands-on experience and practical learning in this outreach programme gave positive responses and we are looking forward to more exciting upcoming projects whereby students will be exposed to DNA techniques and their uses in real-life scenarios.

Household materials (salt, detergent, and alcohol) and fruits for DNA extraction hands-on experiment during the workshop: DNA, The Secret of Life.

ACHIEVEMENTS

AWARDS

DATUK PROFESSOR DR. LOOI LAI MENG

- Appointment to the Medical Research Council (UK) Applied Global Health Research Board

PROFESSOR DATO' DR. TAN CHONG TIN

- Tan Kah Kee Award 2019

DR. JAIME JACQUELINE JAYAPALAN

- Outstanding Women in Health & Medical Sciences, Venus International Foundation, 2020

DR. JASMINE LIM

- First place in Royal Academy of Engineering's Leaders in Innovation Fellowships (LIF) final pitch session 2019/2020

DR. WONG KAH HUI, DR. FOONG CHAN CHOONG, DR. AMIRAH AMIR

- Bronze Medal in Teaching and Learning Congress and Competition (kNovasi) 2020

DR WONG KAH HUI, MS. LEW SZE YUEN

- Gold Award in the Malaysian Technology Exposition (MTE) 2020 - The 19th International Expo on Inventions & Innovations (Category: Invention & Innovation Awards)

MS. LYE AN JIE, MDM CHE RAFIDAH AZIZ, DR. FOONG CHAN CHOONG, PROFESSOR DR. JAMUNA VADIVELU

- Gold Medal in Teaching and Learning Congress and Competition (kNovasi) 2020

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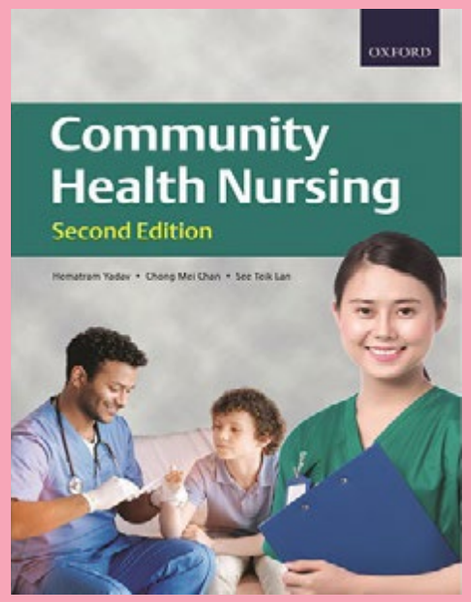


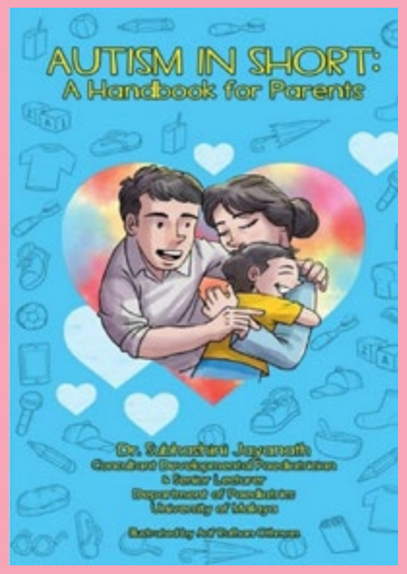
COMMUNITY HEALTH NURSING SECOND EDITION

Author: Chong Mei Chan
Publisher: Oxford Fajar
ISBN: 978-983-47-2860-1

Community Health Nursing is a localized textbook for nursing students pursuing a Diploma in Nursing in Malaysia. This book was published as there was a great need for a localized textbook on Community Health Nursing as this subject is very much country-specific based on current needs and the health climate in the country. Community nursing practices specific to Malaysia are covered in this book.

The text covers a broad range of topics; divided into family health care, social issues, and epidemiology; and this is well structured to aid students in their learning process and in the understanding of local Community Health Nursing. This textbook will be useful in laying a strong foundation for nursing students. It can also be a useful reference tool for allied health sciences students and practising nurses. The textbook is supplemented by an on-line resource which will provide students with resource material (Students' Resource), including a question bank with answers as well as Instructor's Resource material which includes PowerPoint teaching presentations, solution manuals and instructor's manuals.

AUTISM IN SHORT: A HANDBOOK FOR PARENTS



Author: Subhashini A/P Jayanath
Publisher: Gerakbudaya Enterprise
ISBN: 978-967-0311-24-1

This book is a brief guide on autism spectrum disorder for parents of young children.

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RESEARCH OFFICE
DEAN'S OFFICE
LEVEL 3. BLOCK I, FACULTY OF MEDICINE
UNIVERSITI MALAYA
50603 KUALA LUMPUR

TEL: 03-7967 7515

Email: resfom@um.edu.my
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Research Office - FOM UM
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